

Comparison of tongue functions between mature and tongue thrust swallowing-an ultrasound investigation

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Abstract

Many studies have proved that tongue thrusting plays a significant role in the etiology of some orofacial deformities. To learn more about the relationship between tongue function and the form of orofacial structures, it is important to recognize patients with abnormal swallowing patterns. A cushion scanning technique in combination with M-mode ultrasound was applied to measure and compare tongue movements between mature swallowing and tongue-thrust swallowing. Forty subjects with a mature swallowing pattern (23 female, 17 male, aged 21.8 +/- 6.1 years) and 15 subjects with a tongue-thrust swallowing pattern (8 female, 7 male, aged 13.6 +/- 6.6 years) were included in this study. Duration, range, speed, and reproducibility for each of the swallowing subphases were calculated and compared. Tongue-thrust swallowers had a longer late transport phase than mature swallowers ($P < .0009$), and the tongue speed was faster in the early final phase ($P < .05$) compared with mature swallowers. Distinctly different movements can be positively differentiated with the method used.